164 These papery scales cannot be removed easily; I noticed that they did not come off when the woman scratched herself. I believe that the itching is much less severe at this time; it seemed more intense during the initial stages.

I cannot be definite about the time span of the disease. The symptoms evolve in a few days from the first to the second stage, but the latter seems quite prolonged.

[183] Some of the scabs contain incipient papery scales. However, as I had the opportunity to see only one woman and one girl, her daughter, whose bodies were entirely covered with the lesions of the last stage, I believe that the disease does not always reach this point. It may remain stationary at the second stage, or it may recede [involuir].

For the time being, therefore, I ascribe three stages to the disease:

(a) the cyst stage
(b) the scab stage
(c) the scale stage

I believe that these correspond to evolutionary phases of the same disease, and not to different diseases, because I found transitional forms on some of the affected individuals.

Besides, [the Indians] indicated by means of very clear signs that the final symptoms began with the cyst stage, the only one found in nursing children.

[757] The Indians spread saliva on the scabs; we do not know yet [278] whether they use any herb against the disease. They probably do, for veritable herbariums were found in their villages.

302 751 Another question that remains to be solved is the possible effect on the disease of the Indians' custom of painting their body with a greasy paste made from the juice of the urucu seeds. (1)

[113]

1. Alvaro Osorio de Almeida (in the Boletim do Museu Nacional, Vol. 7, 1931, No. 1) studies the reactions of skin painted with urucu to the actinic rays of light and to solar heat. His experiments led him to the following conclusions:

"Once smeared with urucu, the

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Indians are as well protected against the actinic action of the sun as if they were wearing the thick clothing of the Sahara tribes. Because they are nude, however, the air circulates freely around their body, reducing the heat and hastening the evaporation of perspiration.

"If exposed to sunlight, in accordance with the property described above, urucu absorbs only slightly the heat of the sun, reflecting the red rays and also the heat rays. For this reason the white man or one with slight pigmentation, when smeared with urucu, does not perspire excessively as does the Negro under the same circumstances.

"In view of the properties ascribed to urucu by our experiments, and of the widespread usage of this dye among the Indians of tropical America, we believe that it should be considered not as merely ornamental but as an effective means of protection against tropical light and heat."

164 [184] The manifestations and evolution of the disease lead us to believe that it is a dermatomycosis. The habitat of the pathogenic fungus is probably to be found in the soil. This would explain why the personnel of the Line, who have lived among the Nambicuara for years, have not yet contracted the disease. This also applies to the Paresi, [513] who are now in contact with the diseased Indians. Both groups, unlike the Nambicuara, make use of hammocks and never sleep on the ground.

To this day, no microscopic examination of the scales has been made, and I am not responsible for this failure. In 1912 the Indians [123] would not allow us to collect the necessary materials; they were still suspicious.